

Keeping it On Time and On Budget

The public expectation that the Missouri Department of Transportation build its projects when it says it will and for what it says it will cost seems like a no-brainer.

But, as anyone who has tackled home-improvement projects can attest, being surrounded for months by dust and debris is what happens unless careful planning and coordination were exercised along the way. And while the end result can be quite satisfying, it may have cost more than what was originally planned.

Ultimately, the credibility of the ambitious and well-meaning, hammer-wielding husband, who over-promised and under-delivered, suffers.

That's not unlike what can happen on transportation-improvement projects, although the timeline can involve years instead of

months and cost implications can be in increments of millions of dollars instead of hundreds.



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Location Study
Value Engineering Study
Preliminary Plans Approved
Bridge Survey Submitted
Right of Way Plans Approved
Cultural Resources Clear
Environmental Issues Finalized
Right of Way Clear
Utilities Clear
Bridge Plans Submitted

By Bob Brendel



③ Suffice it to say that taking a project from concept to construction is complicated. Planning, designing and constructing a highway or bridge project is a multi-faceted process that can take years to complete. Slip-ups along the way can affect the end result – either in time, dollars, or both. And if problems occur, the next time MoDOT enters the community seeking public acceptance of an improvement proposal it can meet with increased resistance and resentment.

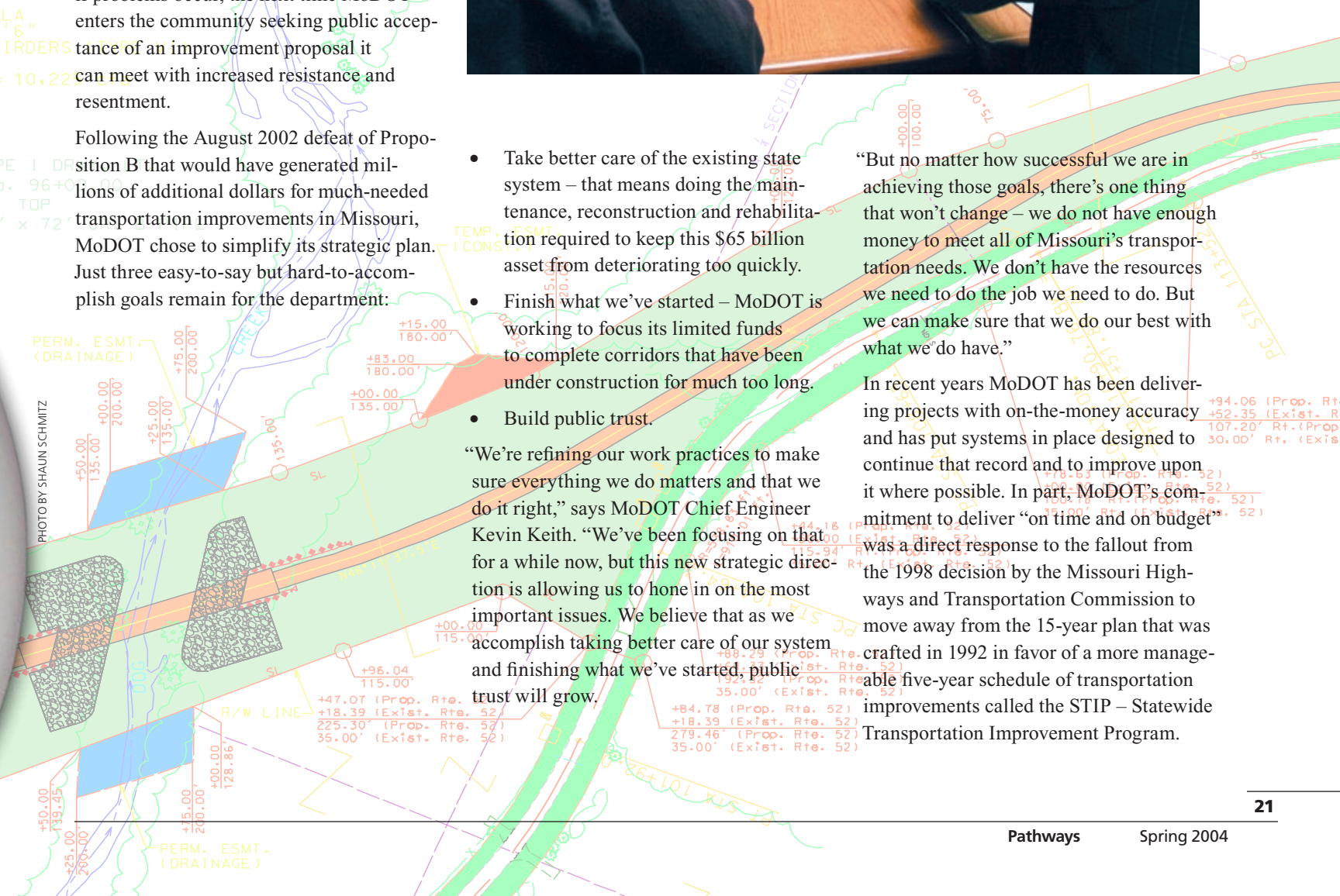
Following the August 2002 defeat of Proposition B that would have generated millions of additional dollars for much-needed transportation improvements in Missouri, MoDOT chose to simplify its strategic plan. Just three easy-to-say but hard-to-accomplish goals remain for the department:

- Take better care of the existing state system – that means doing the maintenance, reconstruction and rehabilitation required to keep this \$65 billion asset from deteriorating too quickly.
- Finish what we've started – MoDOT is working to focus its limited funds to complete corridors that have been under construction for much too long.
- Build public trust.

"We're refining our work practices to make sure everything we do matters and that we do it right," says MoDOT Chief Engineer Kevin Keith. "We've been focusing on that for a while now, but this new strategic direction is allowing us to hone in on the most important issues. We believe that as we accomplish taking better care of our system and finishing what we've started, public trust will grow."

"But no matter how successful we are in achieving those goals, there's one thing that won't change – we do not have enough money to meet all of Missouri's transportation needs. We don't have the resources we need to do the job we need to do. But we can make sure that we do our best with what we do have."

In recent years MoDOT has been delivering projects with on-the-money accuracy and has put systems in place designed to continue that record and to improve upon it where possible. In part, MoDOT's commitment to deliver "on time and on budget" was a direct response to the fallout from the 1998 decision by the Missouri Highways and Transportation Commission to move away from the 15-year plan that was crafted in 1992 in favor of a more manageable five-year schedule of transportation improvements called the STIP – Statewide Transportation Improvement Program.



"It's certainly different than it used to be," State Design Engineer Diane Heckemeyer says. "'On time, on budget' is the total project-development focus ... from the very top of the organization on down."

That focus has had dramatic results. In State Fiscal Year 2003 (July 1, 2002 to June 30, 2003) MoDOT completed 268 projects totaling \$791,884,000. That was within 2 percent of project estimates and it continued a four-year trend that has seen MoDOT deviate by only one-third of one percent on more than \$2 billion worth of highway and bridge improvements.

For 2001, MoDOT was saluted by the Federal Highway Administration as being the nation's most accurate estimating department.

During FY03, more than 85 percent of projects were completed on time, and contractors were held accountable – paying more than \$1.2 million in liquidated damages for projects that were not.

"By carefully and steadfastly examining and reexamining our processes, our policies and our procedures, we've made significant headway with dramatic results," says MoDOT Director of Project Development Dave Nichols.

He cited the use of cost-based estimating as one key to MoDOT's success. "We try to formulate actual costs of construction elements such as equipment rental, labor rates and production costs," Nichols says. "We bid a job just like a contractor would, and cost-based estimating allows us to stay at market value."

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Diane Heckemeyer, State Design Engineer

"This gives MoDOT a benchmark for what can be expected when bids are opened," Heckemeyer says. If contractor estimates appear to be excessive, the commission rejects the bid." MoDOT staff then looks for ways to reduce a project's cost. In the last two-plus fiscal years, MoDOT has saved more than \$14 million by rejecting excessive bids."

Nichols says: "This independent check to make sure we get good prices for highway-construction work shows just how well we're doing to ensure Missourians get a good return on their investment."

Once the need for a project has been determined and programmed for construction dollars by MoDOT's transportation-planning process, the project-development

process begins – taking that project through design, to right-of-way acquisition, to letting and awarding of contracts, and eventually to construction. Key to the process is a small but dedicated cadre of project managers who shepherd the projects through a maze of milestones.

Those district-based project managers, 43 in all, each have an average of 28 projects in the hopper at any given time.

Bulls-eye Estimates on 747 Completed Projects

Fiscal Year	Percentage of Estimate
2003	1.73% Over
2002	.78% Under
2001	.25% Under
2000	4.99% Under



Dave Nichols



Diane Heckemeyer

PHOTOS BY MIKE WRIGHT

"We've trained our project managers to be accountable for the progress of every project," Nichols says. "Project managers must provide explanations internally – and to the state legislature – and ultimately to the public if projects deviate from their schedule or budget."

To develop the project's scope – that portion of the project-development process during which the elements and limits of a project become so well-defined that accurate costs and project-delivery schedules can be forecast – they work with a core team of individuals who specialize in the areas of design, planning, environmental, cultural resources, bridge, railroads, maintenance, traffic, construction, public information and outreach, utilities, materials, legal and right of way.

Barry Bergman, a 20-year MoDOT veteran who was project manager for the recently completed Page Avenue extension in St. Louis, considers core team involvement to be crucial to achieving the "on time, on budget" goal and ultimately to regain trust with Missouri citizens by delivering the STIP. "These teams ensure that all departments are given the opportunity to provide input to improve the quality of the (project's) plans," he says.

As part of a newly adopted scoping process, they follow a number of checklists that help define the scope and cost of the project which ultimately allows right of way and construction dollars to be programmed and for a contract award schedule to be determined.

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mined. "We don't make public commitments to deliver projects until we have that scope defined," Nichols said.

That's not the way it always worked. Years ago projects were placed on the letting schedule based on the judgment of the district staff. "Before project management, the contract award date of a project could easily move until the design coordinators determined the project was ready," said Jay Bestgen, project manager in MoDOT's Central District. Such a sliding schedule often meant that additional project funding was required, affecting MoDOT's ability to deliver both on time and on budget.

MoDOT has also implemented a detailed project-tracking system to allow for early identification of problem areas and to create a tool to measure organizational performance. The software "gives us a detailed look at the timeframe for each task and the tasks that are on the critical path," Bergman says. "This allows the core team to constantly monitor the progress" of the project-development process.

Steve Hamadi, project manager for the complicated Grandview Triangle project in Kansas City,

feels personally invested in his role. "We as project managers need to stay on top of our projects all the way through construction and not drop them when plans are submitted," he says. "I look at 'on time' as more than getting the projects designed and to Jefferson City on time. It is more about getting construction finished when the public expects us to.

"I have been with MoDOT for a little over 16 years and getting projects in on time and on budget has always been important. I think what really has changed are our tools and ability to achieve and track these goals. We also work much more with the public to make sure their expectations are better met."

Between enhanced public involvement, dead-on estimations and improved tracking tools, MoDOT has managed to continually meet the expectations of Missouri citizens and deliver construction projects on time and within budget. If every home-improvement project went as well, there would be far fewer frustrated homeowners.

If you have a project in your area you'd like to discuss or learn more about, call MoDOT at 1-888-ASK MODOT or visit the department's web site at www.modot.org.

Bob Brendel is project development outreach coordinator at MoDOT's Central Office.

Project Development Status

On Schedule
Behind Schedule

